October 22, 2003

MODIS sensor Working Group (MsWG) Summary

Attendance: Bob Barnes, Stuart Biggar, Jim Butler, Nianzeng Che, Vincent Chiang, Wayne Esaias, Bob Evans, Liam Gumley, Alice Isaacman, Gerhard Meister, Chris Moeller, Vince Salomonson, Junqiang Sun, Mike Teague, Gary Toller, Jack Xiong, Zhengming Wan, Joe Esposito

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Scheduled Items

Item 1 Instrument Status

Terra

JX) SSR anomalies occurred on day 2003287 (October 14). Another two Terra SSR supersets were lost. A single superset from was reassigned from MISR to MODIS on day 293, bringing MODIS to a total of 34 supersets and MISR down to 18 supersets. Recycling has brought back failed supersets in the past and may bring back some newly failed supersets.

SB) What is causing the superset failures?

JX) This is not known, however, over the last few months SSR superset failures caused data loss to both Terra and ASTER (see listing of superset failure history in handout).

WE) If there are too many new failures of supersets then data will be lost.

SB) Did any of the same supersets that failed and were recovered previously fail again after recycling?

Aqua:

JX) No problems.

Terra SRCA spatial test data

JX) (referring to hand out charts) Spatial tests data for B10-11 detector 5 (in SBRS order) on day 2003149 provide a baseline.

The data for day 2003211 shows minor drifting in B10 and much more enhanced drifting in B11. The four bands, B10-13, are affected by this drifting.

On day 2003259 B11 shows a different drifting pattern than on day 2003211.

This is an instrument performance issue. Charts of the data have been sent to SBRS (RD).

SB) How many frames are measured for dark signal compared to the SV?

JX) Dark signal response cannot cause the drifting, as B10 does not show the effect strongly (only a couple of dn).

WE) Did the bands saturate for the 10W tests?

JX) B13-16 (higher gain bands) do saturate for the 10W test.

Item 2 Aqua BBR Algorithms (L1B Testing Results)

AI) Kernels were generated for B7 and B26. The test L1B code implements the kernels on specific granules. Before sending the algorithm to the science team is done, we will cull out what does not work. Currently B7 looks good. However, B26 results are ambiguous at this time.

JX) Implementation would affect the L1B error analysis.

AI) There are reservations to using this algorithm in L1B. The L1B code would have to be changed such that the processing would jump out of a major loop, determine the BBR, then jump into another loop to do the uncertainty calculation. How much science team support is there for doing this change in L1B?
WE) Will all bands be corrected or just B7 and 26?
AI) The algorithm would be expanded for only the cold planes, SW/SMIR and LWIR, for now.
JX) The test has only been done for B7 and 26 but may expand to the NIR FPA.
CM) We use cold with warm FPAs. Offsets in the BBR don't affect atmospheres. We would suggest not including this algorithm in L1B.
VS) We should not do this in L1B and when we integrate team responses there seems to be no need to include this algorithm in L1B.
WE) Do not feel this is a problem for the oceans science team.
AI) We will send out the results we currently have to the science teams.
WE) Support not to do this in L1B (CM- same statement)

Item 3 Calibration Issues

Aqua/Terra LUT issues

JX) The best possible Terra LUTs were sent to Miami. All updated corrections and m_1 smoothing were included, L1B V4.2.4 reversioned to L1B 4.2.8 by MODAPS. Shaida asked if we could update the LUTs less often. MCST can do an immediate update if the instrument changes.
WE) Oceans would be amenable to a threshold.
JX) This can be done as Aqua changes more slowly and updating can go to three-weeks.
WE) We should have more (offline) discussions about this.
JX) Wayne will contact Miami and tell MCST how often Oceans wants updates.

Around the Table

Participant: Wayne Esaias – A synopsis of the MCST/Oceans Workshop was sent out. No feedback has been sent back (at this time). When we held the workshop Gene was working on stray light using the reverse ray tracing. What is the status of this?

JX) The reverse ray trace shows that some rays miss the primary mirror. This implies that stray light (NADIR) from the cavity can get to the focal planes. MCST looked at the SV frames and saw no effect. However, in a discussion with BG, he pointed out that the scan mirror might bring stray light to the primary mirror.
WE) Stray light that affects the SD calibration can compensate for EV (NADIR) stray light.
JX) There can be a variation in the L1B product due to stray light.

Reprocessing

WE) Test L1B ocean data by passing the data through L1B for L2 to use.
MT) We can handle reversioning as you request.
AI) Should we insert correction changes in the L1B code for Aqua collect 4?
JX) We should put in testing code and use LUTs to turn corrections on/off.
AI) We can put in on/off switches.
Timetable: November 7 – code delivery;
December 1 – DAAC starts reprocessing with new L1B;

March – DAAC starts reprocessing using the L1B Ocean subsetted code. The test correction code can be inserted before March reprocessing and selected correction switches can be set on at that time.

WE) L1B Ocean subsetted version – starts in March for Oceans. This will not affect the reprocessing.

VC) Temperatures are added to the L1B Ocean subsets.

JX & WE) Need more discussion on this.

AI) Lets set up a meeting (10/27 at 2:00PM, Rm. TBA)

Participant: Chris Moeller – We have looked at radiometry before/after destriping.

LG) 1. Looked at Aqua brightness temperature results for granules before/after destriping. Data is chosen for water content, high/low clouds, etc. We created a histogram of the raw minus destriped values normalized by detector 4 (product order) then restored the median by applying an offset. B24, 27, and 30 showed a difference in the histogram for new versus old median.

2. Looked at the scene temperature to see if the is a scene temperature influence. Did not see an overall effect due to scene temperature. Some bands (24,30) showed a strong influence in some detectors.

Conclusion: Destriping does not influence the radiometry.

CM) We will look at other scenes. Want to look at granule to granule to ascertain if there is any influence.

Participant: Zhengming Wan - Is there a new RVS for the NIR from the DSM results?

JX) Will send out a package on the RVS impact.

Participant: Bob Evans – Miami is working on a new radcor for Terra.

Next MsWG meeting November 3, 2003